MONTHLY WEATHER REVIEW.

Editor: Prof. CLEVELAND ABBE. Assistant Editor: FRANK OWEN STETSON.

VOL. XXXV. APRIL, 1907. No 4.

The MONTHLY WEATHER REVIEW is based on data from about 3500 land stations and many ocean reports from vessels taking the international simultaneous observation at Greenwich noon.

Special acknowledgment is made of the data furnished by the kindness of cooperative observers, and by R. F. Stupart, Esq., Director of the Meteorological Service of the Dominion of Canada; Señor Manuel E. Pastrana, Director of the Central Meteorological and Magnetic Observatory of Mexico; Camilo A. Gonzales, Director-General of Mexican Telegraphs; Capt I. S. Kimball, General Superintendent of the United States Life-Saving Service; Commandant Francisco S. Chaves, Director of the Meteorological Service of the Azores, Ponta Delgada, St. Michaels, Azores; W. N. Shaw, Esq., Director Meteorological Office, London; H. H. Cousins, Chemist, in charge of the Jamaica Weather Office; Rev. L. Gangoiti, Director of the Meteorological Observatory of Belen College, Havana, Cuba.

As far as practicable the time of the seventy-fifth meridian is used in the text of the MONTHLY WEATHER REVIEW.

Barometric pressures, both at land stations and on ocean vessels, whether station pressures or sea-level pressures, are reduced, or assumed to be reduced, to standard gravity, as well as corrected for all instrumental peculiarities, so that they express pressure in the standard international system of measures, namely, by the height of an equivalent column of mercury at 32° Fahrenheit, under the standard force, i. e., apparent gravity at sea level and latitude 45°.

FORECASTS AND WARNINGS.

By Prof. E. B. GARRIOTT, in charge of Forecast Division.

IN GENERAL.

In the United States April was exceptionally cold from the Rocky Mountains to the Atlantic coast, and at many points average and minimum temperatures were the lowest recorded in many years. Frosts were frequent in the Gulf and South Atlantic States during the first and second decades of the month. On the 3d light frost occurred over the Florida Peninsula as far south as the twenty-eighth parallel, and was noted on the 14th and 15th in northern Florida. After the 10th frost was frequent in parts of the North Pacific States. At the close of the month freezing temperature was reported in northwestern Texas. In the latter portion of the third decade wintry weather prevailed in Europe, and snow fell in Germany and thence over the northern portion of the Italian Peninsula.

In the Rocky Mountain districts the first half of the month was mild and the latter half cold, with a general deficiency in precipitation. In California the month was a quiet one, with light rainfall. In the North Pacific States there were two rain periods, one from the 4th to the 6th and the other on the 9th and 10th. The heavy rains of the first period produced a bank-full stage of water in the Willamette River at Portland, Oreg.

Snowfalls over interior and eastern districts of the United States were the heaviest in many years, if not for the whole period of observation; during the third decade 1 inch to 12 inches of snow fell in the Dakotas, Minnesota, Wisconsin, upper Michigan, and northern lower Michigan. During this period snow and sleet storms occurred in the States of the middle Mississippi Valley, and heavy rains in the Southwestern States. At New Orleans, La., a depth of nearly 7 inches of rain was recorded on the 25th. This storm had prevailed at the close of the second decade on the middle-eastern slope of the Rocky Mountains, where maximum depths of snowfall ranged from 1 foot to 1½ feet. In the second decade snow fell in Tennessee on at least two dates. and the close of that decade was marked by snowstorms in Ohio, Pennsylvania, and New York. In New England the heaviest snowstorm of the month prevailed from the 8th to 10th, when the fall varied from 6 inches on the coast to 12 or 18 inches in the interior.

Referring to the frosts of the second decade in the Middle-western States the Morning Republican, of Springfield, Mo., remarks in its issue of April 17, 1907, as follows:

It is due to the Weather Bureau to state that its forecasts of the recent frosts and freezes have been marvelously accurate. Had the fruit growers of Missouri, all of whom received timely warnings, possest the same facilities for firing or smudging their orchards as do the orange growers of Florida and California, there would have been little or no loss.

A culminating feature of March weather was a storm development off the extreme southeast coast of the United States, and a cool wave over the eastern districts that followed a period of exceptionally high temperature over the eastern half of the United States. This storm broke a long drought over the Florida Peninsula that had caused considerable damage to gardens and fruit trees that were not irrigated. The storm that developed marked intensity off the southern Florida coast during the opening days of April appears to have resulted from a union of two barometric depressions over that region, one of which had been forced southward over Florida by an area of high barometer to the northward, and the other a depression that had appeared over the Caribbean Sea during the latter part of March. The presence of the latter depression was shown by observations taken at San Juan, P. R., from March 26 to 29. At that station brisk north and northwest winds, with a moderately high sea from the north, prevailed during the night of the 26–27th. The morning of the 27th the sea became very high from the north, and vessels were obliged to stand off the harbor during the 27th and 28th. A very heavy sea from the north continued during the 28th. On the 29th the sea moderated from the west and north, and vessels were able to enter the harbor. The morning of April 1 a well-defined storm was central off the east Florida coast north of Jupiter. In the meantime a gale had sprung up that extended from the southern Florida coast over the western Bahamas and the middle and west Cuban coasts, and continued over those regions until the 3d, with maximum wind velocities 48 miles an hour at Key West the morning of the 2d, and 60 miles an hour at Havana the morning of the 2d. By the morning of the 4th the center of this disturbance had past to a position near and southeast of Bermuda, and by the 6th had merged with an extensive area of low barometer that from the beginning of the month had extended from the British Isles westward over the Atlantic. Storm warnings in connection with this storm were ordered at all ports on the southern Florida coast the evening of March 31.

Storms of unusual severity were occasionally encountered